

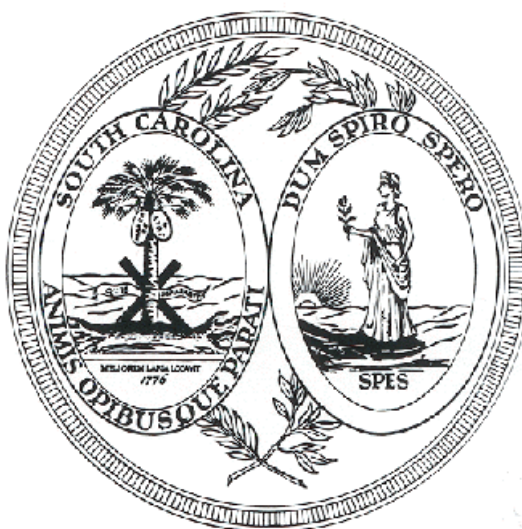
South Carolina Legislative Audit Council

LAC

## Report to the General Assembly

December 2001

# A Review of Competition for the Department of Transportation's Road Paving Contracts



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*A Review of Competition for the Department of Transportation's Road Paving Contracts*  
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Report to the General Assembly

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A Review of Competition  
for the Department of  
Transportation's Road  
Paving Contracts

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# Synopsis

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Members of the General Assembly requested that we review the South Carolina Department of Transportation's (SCDOT) procedures for awarding road paving contracts. We reviewed the level of competition among contractors for SCDOT's road paving contracts and the department's internal controls for detecting bid-rigging or other forms of anti-competitive behavior. We found evidence to indicate that the level of competition for some road paving contracts is less than optimal in certain geographic areas of the state. This is not necessarily the result of anti-competitive practices by contractors. However, SCDOT does not conduct a regular analysis of bidding patterns to ensure that the state's bidding process for road paving and road construction is open and competitive.

Although we focused on road paving, the recommendations in this report could be applied to all of SCDOT's road construction projects. Our findings are summarized below.

- ❑ We analyzed all 496 road paving projects put out for bid by SCDOT between FY 95-96 and FY 00-01. We found that nearly one-half, (49%) of the projects, had two or fewer bidders, and 12% of the projects had only one bidder (see p. 7).
- ❑ We examined the geographic distribution of road paving projects. We identified 13 counties in which the top company had over 70% of the market. We also examined the 12 counties where there was more than \$10 million in road paving contracts awarded between FY 95-96 and FY 00-01. We found that, in four of these counties, the top two companies accounted for over 95% of the market (see p. 9).
- ❑ Improved competition could result in lower costs for road construction projects. We compared SCDOT's project cost estimates to the low bids for projects where there was a single bidder and those for projects with multiple bidders. We found that the average of the low bids on single bid projects was 5% *above* SCDOT's cost estimate while the average of the low bids for projects which had multiple bidders was 4% *below* the cost estimate (see p. 12).
- ❑ SCDOT does not conduct a formal analysis of bidding patterns to detect anti-competitive behavior. Over the last five years SCDOT has spent \$246,000 leasing a computer software system for analyzing bidding patterns but has not used the system. The department expects to begin regular analysis of bids in 2003 (see p. 13).

- ❑ SCDOT has not monitored how closely it has met guidelines recommended by the federal government for the accuracy of engineers' cost estimates for construction projects. The Federal Highway Administration (FHWA) recommends that the engineer's estimate be within 10% of a project's low bid at least 50% of the time. For road paving projects SCDOT's engineers' estimates have met the guideline. However, for all road construction projects, the department's estimates have been within 10% of the bid less than 50% of the time (see p. 15).
- ❑ SCDOT's bid opening procedures increase the likelihood of bid-rigging. Once a month, the department opens contractors' bids for paving and road construction projects at a hotel in Columbia. The deadline for submitting bids expires at the same time bids are opened. The night before bids are due, many contractors stay in the hotel at discount rates obtained by SCDOT. This process can make collusion among contractors easier (see p. 17).



# Introduction and Background

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## Audit Objectives

Members of the General Assembly requested that we conduct an audit of the South Carolina Department of Transportation's procedures for awarding road paving contracts. In particular, the requesters wanted to ensure that the bidding process is open and competitive. Our specific objectives are listed below.

- ☐ Determine the extent to which contractors have acted in an open and competitive manner when submitting bids for road paving projects. In particular, examine the extent to which competition has varied among geographic regions.
- ☐ Determine whether SCDOT has adequate internal controls in place to prevent and detect anti-competitive practices among contractors bidding on road paving projects.

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## Scope and Methodology

The period covered during this audit was primarily FY 95-96 through FY 00-01. Our sources of evidence included:

- SCDOT bid documents for road paving projects.
- Federal and state antitrust laws.
- SCDOT financial records.
- Publications of the United States Department of Justice.

We interviewed officials with SCDOT, the South Carolina Attorney General's office, and the State Law Enforcement Division. We also contacted the Federal Highway Administration, the Antitrust Division of the United States Department of Justice, and the Federal Trade Commission. We obtained information from other states and private organizations, such as the American Association of State Highway and Transportation Officials (AASHTO). We used limited, non-statistical samples as indicated in the audit. In cases where we relied on SCDOT's computerized data, we performed a limited review of management controls over the data. This audit was conducted in accordance with generally accepted government auditing standards.

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## Background

The South Carolina Department of Transportation's mission is to provide a safe and efficient transportation system. A major part of that mission is building and maintaining the state's system of roads and bridges. South Carolina has the fourth largest state-maintained highway system in the nation. It consists of over 41,000 miles. Table 1.1 shows the composition of the system.

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**Table 1.1: Composition of South Carolina's Highway System**

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Interstate	830 miles
Primary (US/SC)	9,400 miles
Secondary	31,000 miles

Source: SCDOT Legislative Briefing.

A total of 65% of South Carolina's roads are state-maintained compared to a national average of 21%.

The SCDOT is funded primarily through a motor fuel tax of 16¢ per gallon of gasoline. For road construction projects, SCDOT receives funds from the Federal Highway Administration in the form of a match of approximately 80%. Table 1.2 shows SCDOT's funding for FY 01-02.

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**Table 1.2: SCDOT's Funding for FY 01-02**

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CATEGORY	AMOUNT IN MILLIONS
Highway Maintenance	\$197.0
Toll Operations	3.0
Mass Transit	6.2
Operations and Administration	80.0
State Matching Funds	103.0
Federal Funds	496.0
TOTAL	\$885.2

Source: SCDOT.

In FY 00-01, SCDOT awarded over 197 road construction contracts with contract amounts totaling \$638 million. In that period, road paving contracts totaled over \$68 million.

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## SCDOT's Bidding Process

Before requesting bids for a project, SCDOT's district engineers develop construction plans. Next, SCDOT's Office of Preconstruction arrives at a cost estimate. About once a month, SCDOT issues an "invitation for bids" on road paving and road construction contracts. The contracts usually consist of multiple road paving and/or road construction projects located within one or more counties.

Each contractor is required to be pre-qualified by SCDOT. Bids include an overall contract price as well as unit prices for components of the project.

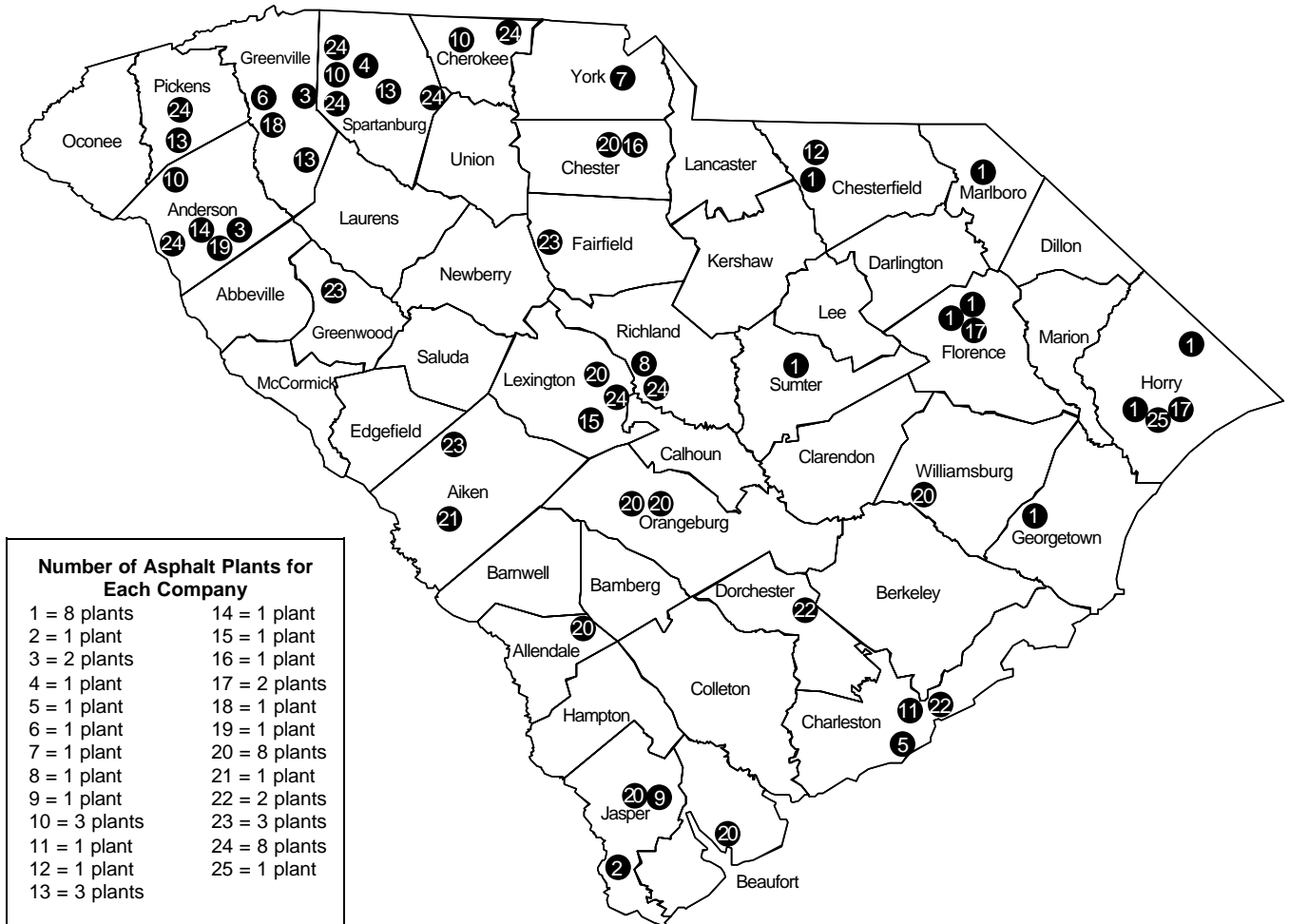
Contractors are required to submit sealed bids by a certain date. Once a month, SCDOT opens the bids at a public meeting held in a Columbia hotel. The department reserves the right to reject any and all bids for a project and rebid the project.

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## Road Paving

Asphalt is made by mixing rock and sand (over 90%), liquid asphalt (6%), and lime (1%) at a high temperature. This procedure takes place at various asphalt plants located around the state. Once the asphalt is produced, it must immediately be trucked to the road site and laid. Since asphalt must be applied hot, plants normally must be within a one-hour drive time of the road site, or the temperature of the asphalt will be too low. Thus, the proximity of the asphalt plant to the road paving project is an important factor in determining whether a company will bid on a project and the total bid amount. The closer the asphalt plant is to the roads to be paved, the more likely the contractor will bid and the lower the bid will be. We identified 25 companies and 55 asphalt plants certified by SCDOT to perform state work in South Carolina. Figure 1.3 shows the approximate location of these asphalt plants in the state.

**Figure 1.3: Location of Asphalt Plants in South Carolina  
Certified to Perform State Work (June 2001)\***



\*In addition to the asphalt plants in South Carolina, SCDOT officials report that there are nine plants in Georgia and North Carolina that are certified to perform work in South Carolina. There are also eight asphalt plants in South Carolina that are NOT certified to perform state work.

Source: DHEC's Bureau of Air Quality.

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## Bid-Rigging

Bid-rigging occurs when competitors agree in some way to affect the outcome of the bidding process. Market allocation occurs when bidders divide markets. A competitor may agree to sell only to customers in certain geographic areas and refuse to sell to customers in geographic areas allocated to other companies. In the case of government contracts, bid-rigging results in increased costs to the state, and ultimately, the taxpayer, for goods and services purchased from the private sector.

In the 1980s, highway bid-rigging was uncovered in a number of states, including Florida, Georgia, and North Carolina. These investigations resulted in a number of convictions and millions of dollars in fines and restitution to the states.

Evidence of bid-rigging and other forms of anti-competitive behavior can be collected in two ways. One way is through direct evidence, such as testimony of a participant. Another way is through circumstantial evidence, such as suspicious bid patterns, travel and expense reports, and telephone records.

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## Federal and State Law

The federal Sherman Act (15 U.S.C. §1) states that “[e]very contract, combination . . . or conspiracy, in restraint of trade or commerce among the several States, or with foreign nations, is declared to be illegal.” The U.S. Department of Justice reports that the Sherman Act “. . . prohibits any agreement among competitors to fix prices, rig bids, or engage in other anti-competitive activity.” For example:

- Companies may not intentionally submit bids that are too high to have a chance of winning so that a pre-determined company will have the low bid.
- Companies may not agree to take turns submitting the low bid.
- Companies may not have agreements in which each company is allocated a certain geographic territory.
- Companies may not agree to lose contracts intentionally in exchange for subcontracts from the winning company.

In addition to bid-rigging, it is illegal for a contractor to gain excessive market share through mergers and acquisitions with other companies. The federal Clayton Act (15 U.S.C. §18 ) prohibits mergers or acquisitions where the effect is “. . . substantially to lessen competition, or to tend to create a monopoly.” Section 39-3-10 (c) of the South Carolina Code of Laws states:

All arrangements, contracts, agreements, trusts, or combinations . . . between two or more individuals, firms, corporations, syndicates or associations that may lessen or affect in any manner the full and free competition in any tariff, rates, tolls, premium or prices in any branch of trade, business or commerce are declared to be against public policy, unlawful, and void.

There are state and federal agencies that can investigate anti-competitive activities. The federal Department of Justice has an antitrust division which will respond to complaints concerning anti-competitive behavior. The Federal Trade Commission has authority to examine company mergers for potential anti-competitive effects. State law allows the Attorney General to prosecute companies and individuals who violate state antitrust and unfair trade practices statutes.

# Audit Results

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In this chapter we review the extent of competition among contractors for the Department of Transportation's road paving contracts. In addition, we examine SCDOT's internal controls for deterring and detecting anti-competitive behavior. We found evidence to indicate that the level of competition for some road paving contracts is less than optimal. The department does not conduct a formal analysis of bidding patterns as recommended by the Federal Highway Administration.

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## Bid Data Analysis

One of our audit objectives was to determine if contractors had acted in an open and competitive manner when submitting bids for highway projects. In particular, we examined the number of bids submitted for each road paving project and the extent to which competition has varied among the state's geographic regions.

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### Number of Bids Per Project

We analyzed the number of bids per project for all 496 road paving projects put out for bid between FY 95-96 and FY 00-01. Federal Highway Administration technical advisory T 5080.4 indicates that it is more difficult to ensure "adequate competition" when there are fewer than six bidders. A U.S. Corps of Engineers study found that a minimum of seven bidders is needed to ensure that a competitive price is paid for a project.

We found that less than 5% of SCDOT's road paving projects had more than four bidders. Nearly one-half, (49%) of the projects, had two or fewer bidders, and 12% of the projects had only one bidder. Table 2.1 shows the number of bids per project.

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**Table 2.1: Number of Bids per Project for FY 95-96 to FY 00-01**

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NUMBER OF BIDS	NUMBER OF PROJECTS	PERCENTAGE OF TOTAL PROJECTS*
1	58	12%
2	185	37%
3	147	30%
4	87	18%
5	15	3%
6	3	1%
7	1	0%
TOTAL	496	100%

\* Figures may not add due to rounding.

Source: LAC Analysis of SCDOT bid data.

We also found that three companies accounted for 53 (91%) of the single bid projects. Table 2.2 shows the percentages of single bid projects by company.

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**Table 2.2: Percentage of Single Bids by Company**

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COMPANY	NUMBER OF SINGLE BID PROJECTS	PERCENTAGE OF ALL SINGLE BID PROJECTS*
A	23	40%
B	19	33%
C	11	19%
All Others	5	9%
TOTAL	58	100%

\* Figures may not add due to rounding.

Source: LAC Analysis of SCDOT bid data.

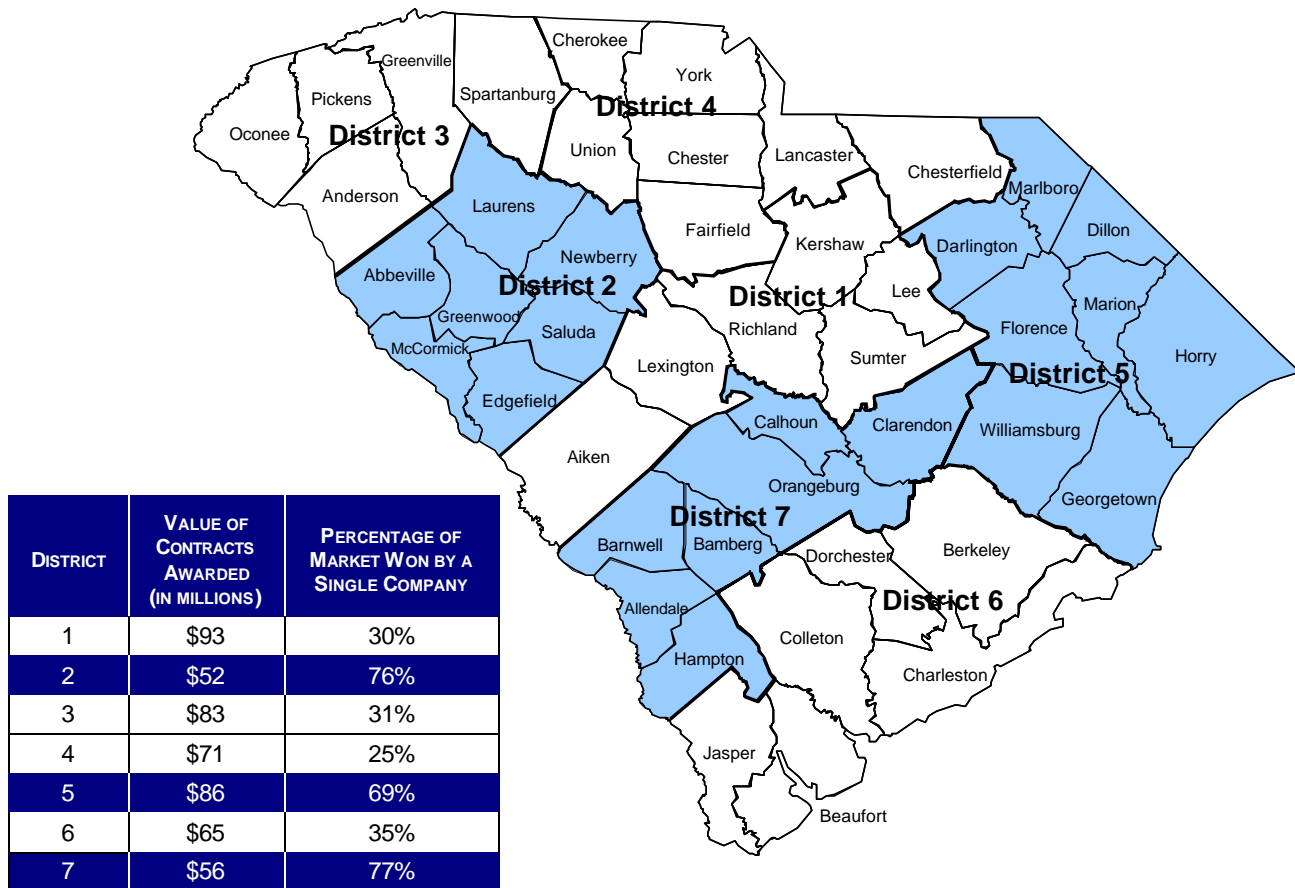
In one county, we found that 7 (70%) of the 10 projects put out for bid between FY 95-96 and FY 00-01 had only one bidder.



## Geographic Distribution of Projects

We examined the geographic distribution of road paving projects and found several areas of the state where one company was awarded most of the paving work in that area. Figure 2.3 shows that in three of SCDOT's seven districts, one company within each district had over two-thirds of the total market share between FY 95-96 and FY 00-01. In the other four districts, no company had more than 35% of the market.

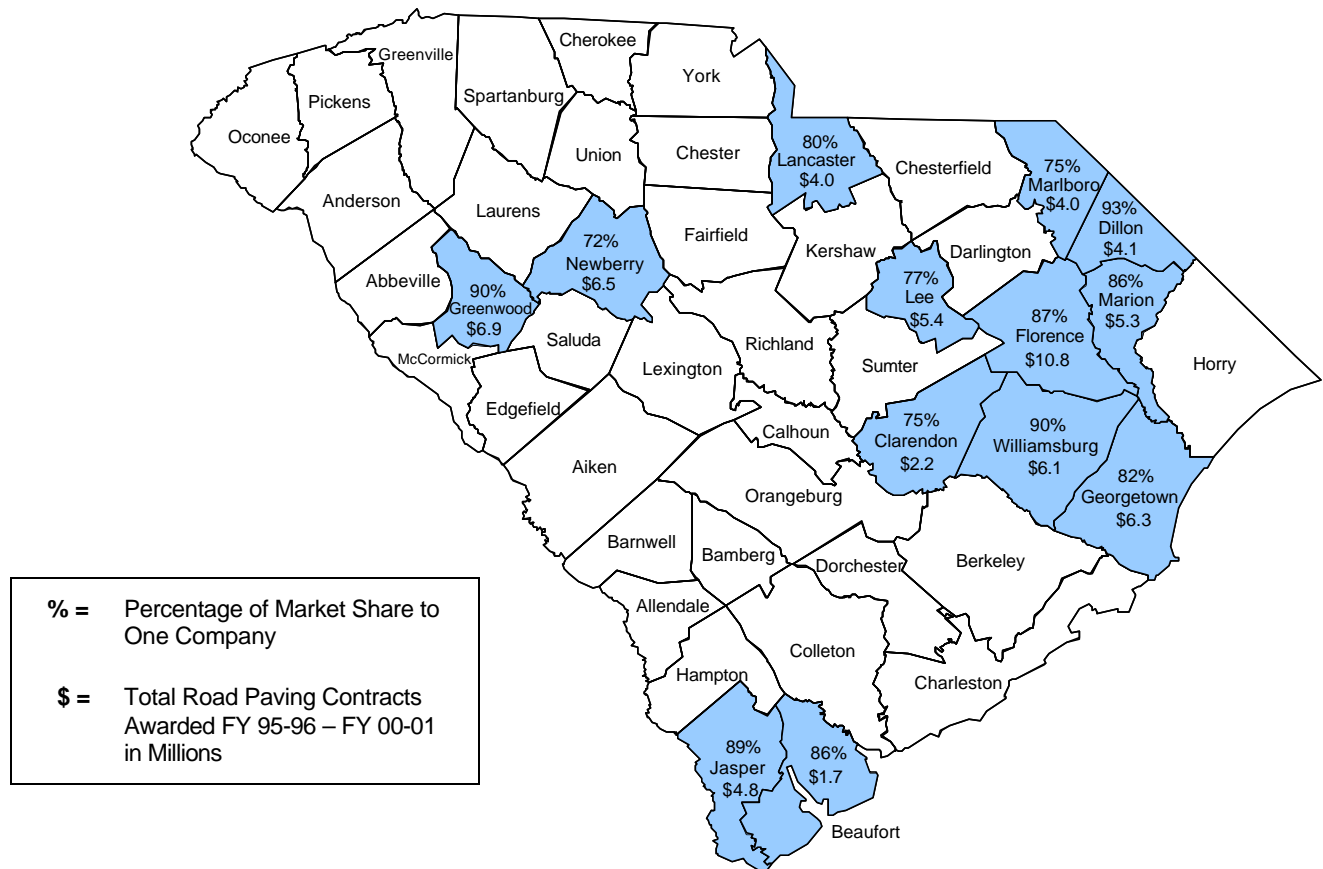
**Figure 2.3: Districts Where One Company had Over Two-Thirds of the Total Market Share  
FY 95-96 — FY 00-01**



Source: SCDOT bid data and DHEC permit records.

We also examined the geographic distribution of road paving projects by county. Of the 496 road paving projects put out for bid between FY 95-96 and FY 00-01, 392 were projects where all the roads to be paved were within a single county. We identified 13 counties in which the top company had over 70% of the market. Figure 2.4 shows the county, the amount (in millions) of the paving contracts awarded to all companies between FY 95-96 and FY 00-01, and the percentage won by a single company.

**Figure 2.4: Counties In Which the Top Company had Over 70% of the Total Market Share  
FY 95-96 — FY 00-01**



Source: SCDOT bid data.

We also examined the 12 counties where there was more than \$10 million in road paving contracts awarded between FY 95-96 and FY 00-01. We found that, in four of these counties, the top two companies accounted for over 95% of the market. Greenville, the county with the most road paving work, had two companies account for 66% of the market. Table 2.5 shows the counties and the amount of the market accounted for by the top two companies.

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**Table 2.5: Percentage of Market for Top Two Companies in Counties with More Than \$10 Million in Road Paving Contracts**

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COUNTY	AMOUNT OF ROAD PAVING WORK	PERCENTAGE OF MARKET FOR TOP TWO COMPANIES
Florence	\$10.8 million	100%
Charleston	15.9 million	100%
Horry	15.3 million	97%
Kershaw	11.9 million	96%
York	12.0 million	82%
Richland	14.5 million	82%
Sumter	10.9 million	81%
Aiken	19.5 million	77%
Spartanburg	12.7 million	71%
Lexington	12.0 million	70%
Greenville	20.1 million	66%
Anderson	13.7 million	59%

Source: SCDOT bid data.

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## Reasons Cited for Lack of Competition

According to federal, state, and private officials, there are several reasons that may account for a lack of competition in some parts of the state. First, meeting the necessary zoning requirements can be difficult. Even though asphalt plants are mobile, these officials stated it is difficult to move a plant from one part of the state to another because of zoning restrictions. Second, the cost to establish an asphalt plant can be prohibitive. Building a new asphalt plant can cost several million dollars. Third, officials cited the difficulty in obtaining the required environmental permits needed to operate an asphalt plant.

We contacted seven counties concerning their zoning restrictions for asphalt plants. In general, counties restrict asphalt plants to areas zoned for industrial use. However, most of these counties reported that they had no additional restrictions for asphalt plants. DHEC is the agency responsible for issuing air quality permits. We did not see evidence that obtaining a permit was

prohibitive. According to a DHEC official, no company has been denied a permit to build an asphalt plant.

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## Impact of Competition on Prices

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When one company dominates a certain area, it can result in lower competition and potentially higher prices. Prior to putting a project out for bid, SCDOT staff develop an estimate of the project's cost. We reviewed the 437 road paving projects for which estimates were available. We compared the estimates and low bids for the 53 road paving projects where there was a single bidder to the 384 projects with multiple bidders.

We found that the average of the low bids on single bid projects was 5% *above* SCDOT's cost estimate while the average of the low bids for projects which had multiple bidders was 4% *below* the cost estimate. This suggests that efforts to reduce the number of single bid projects could result in lower prices. We estimate that if the single bid projects had multiple bidders, the total amount awarded for these projects could have been reduced up to \$5.4 million.

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## Conclusion

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While the factors discussed above may be an indication of anti-competitive behavior, they are not proof. For example, bids that come in well above the engineers' estimates may indicate anti-competitive behavior or it may be a case of a bidder intentionally submitting a high bid because the company is too busy to handle the additional work but wants to remain on the bidder's list. Indicators of anti-competitive behavior should not be considered definitive evidence, but should lead to further investigation to determine whether or not the behavior actually exists.

We contacted the Antitrust Division of the United States Department of Justice during the initial phase of our review and provided them with background information and bid data. At that time, the department did not see a need to open a preliminary investigation, but the department did state that it would continue to review any and all information. We intend to provide the department with a copy of our final report.

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## Internal Controls

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One of our objectives was to determine whether SCDOT has adequate internal controls to deter and detect bid-rigging and other forms of anti-competitive behavior by road paving and road construction contractors. We found that the department does not conduct a formal analysis of bidding patterns as recommended by the Federal Highway Administration.

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### Internal Controls in Place

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SCDOT has implemented some controls recommended by the Federal Highway Administration to deter and detect bid-rigging and other forms of anti-competitive behavior.

Below are examples of internal controls currently in place.

- As required by S.C. Reg. 63-300, section 102.1 of SCDOT's "standard specifications" requires that contractors be prequalified by SCDOT to bid on road construction and paving work.
- An SCDOT official reports that before requesting bids for a project, the department estimates the cost, but does not make the estimate public until after a contract has been awarded. This restriction, however, is not a written policy of the department.
- As required by 23 CFR 635.112(f), SCDOT's standard contract requires bidders to sign sworn statements attesting that they have not colluded or participated in other anti-competitive activities with regard to the project.
- Section 102.14 of SCDOT's "standard specifications" allows SCDOT to reject any or all bids "if there is reason to believe that collusion exists among the bidders."

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### Analysis of Bidding Patterns

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SCDOT does not conduct a formal analysis of bidding patterns that could indicate anti-competitive behaviors by contractors. Since 1982, the Federal Highway Administration has recommended that states use computer software in:

[a] conscientious effort . . . to determine if bid-rigging is currently ongoing or has occurred in the recent past. To make this determination, an adequate number of projects awarded over a sufficient time period must be evaluated. A time period of approximately five years should be selected for the initial evaluation to determine if any abnormal competitive bid patterns exist.

Below are examples of areas the FHWA believes bidding pattern analysis should address.

*Number of Contracts Awarded to a Specific Firm*

Is market share concentrated among one or a small number of contractors? (see p. 7)

*Consistent Percentage of the Available Work in a Geographic Area to One Firm or to Several Firms over a Period of Time*

Is there evidence that individual contractors have agreed to limit their work to specific geographic areas? (see p. 9)

*Rotation of Successful Bids among Contractors*

Is there evidence that contractors take turns designating which one of them will submit the low bid?

*Consistent Percentage Differential in the Bids*

Is there evidence that contractors have agreements regarding the amount by which their bids differ?

*Consistent Percentage Differential Between the Successful Bid and the Engineer's Estimate*

Is there evidence that a contractor has obtained access to confidential cost estimates developed by the purchaser?

SCDOT has been leasing bidding pattern analysis software from the American Association of State Highway and Transportation Officials (AASHTO) since 1991 but has not used it. Total lease expenditures by SCDOT from FY 97-98 through FY 01-02 were \$246,000. SCDOT officials report that their efforts to use the software have not been successful because the department's database pertaining to project design, cost estimation, bidding, and project management has not been sufficiently automated. In 2002, department officials expect to complete an automated database that will support AASHTO bidding analysis software. In 2003, the department expects to begin regular analysis of the bidding patterns of contractors.

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## Experience in Other States

A predecessor to AASHTO's bidding pattern analysis software was first used in the early 1980s to prosecute road construction contractors in Florida. Transportation officials in Florida and North Carolina currently use the software. Although they report no recent cases of prosecution or lawsuits resulting from bidding pattern analysis, they believe that contractors' knowledge that the analysis is taking place deters anti-competitive behavior.

In 2001, a federal grand jury began investigating anti-competitive behavior in the road paving industry in Kentucky. The state transportation agency in Kentucky has not conducted routine statistical bidding pattern analysis since the early 1990s but has plans to do so.

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## Conclusion

Conducting regular statistical analysis of bidding patterns can increase SCDOT's ability to deter and detect bid-rigging and other forms of anti-competitive behavior. It is important to note that information on bidding patterns alone may not provide definitive evidence of anti-competitive behavior. It may be necessary to seek direct evidence, such as correspondence, conversation recordings, or eyewitness accounts.

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## Recommendations

1. The Department of Transportation should conduct regular analysis of the bidding patterns of road paving contractors and road construction contractors that do business with the state. This analysis should focus primarily on bid-rigging and other forms of anti-competitive behavior.
2. The Department of Transportation should report any evidence of bid-rigging or other forms of anti-competitive behavior to the appropriate state and federal law enforcement agencies.
3. The Department of Transportation should enact a written policy requiring that cost estimates of road paving and road construction projects be kept confidential until after the contracts are awarded.

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## Engineers' Estimates

The Department of Transportation has not monitored how closely it has met guidelines recommended by the federal government for the accuracy of engineers' cost estimates for construction projects. In addition, SCDOT does not have a written policy addressing when a bid is to be reviewed or rejected.

Prior to putting a project out for bid, SCDOT's engineers develop an estimate of what a project will cost. This estimate is based on historical cost data. According to the Federal Highway Administration, this estimate can be used as a guide in reviewing bids. The FHWA recommends that, for at least 50% of all projects, the low bid should be within plus or minus 10% of the engineer's estimate.

For road paving projects SCDOT's engineers' estimates have met the guideline. However, when road paving projects are combined with all road construction projects, the department's estimates have been within 10% of the bid less than 50% of the time. According to SCDOT data, in FY 99-00 the low bid was within 10% of the engineers' estimates 45% of the time. In FY 00-01, the percentage was 43%.

SCDOT also does not measure the percentage of time the low bid exceeded the engineer's estimate by 10% or more, and has no written policy on when a bid is to be reviewed for possible rejection. However, it does have an unwritten guideline which states that any project on which the low bid exceeds the engineer's estimate by more than 10% should be examined. We found that, for the 437 road paving projects for which estimates were available, 56 (13%) were awarded when the low bid exceeded the engineers' estimates by 10% or more.

When SCDOT does not meet federal guidelines, the credibility of the estimating process may be called into question. Without measuring how often the low bid exceeds the engineer's estimate, SCDOT cannot be sure of the accuracy of its estimating process. Without accurate estimates, SCDOT is less likely to question high bids, and its review of bids for possible anti-competitive behavior may be less effective. SCDOT may also pay more than necessary for road paving projects.

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## Recommendations

4. The Department of Transportation should annually measure how often it meets the federal recommended guideline for the accuracy of engineers' cost estimates.
5. The Department of Transportation should develop a written policy specifying when bids are to be reviewed and rejected.



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## Conditions Associated With Anti-Competitive Behavior

The United States Department of Justice has noted a number of conditions that can make it easier for contractors to collude in an effort to restrict competition. We found that SCDOT's procurement of road construction and paving services exhibits some of these conditions. According to the Antitrust Division of the Department of Justice:

- ❑ "Bidders who congregate in the same building or town to submit their bids, have an easy opportunity for last-minute communications."

SCDOT conducts its public bid openings at a hotel in Columbia. The deadline for submitting bids and the bid opening occur at 11:00 a.m. on the second Tuesday of each month. In a contract signed between SCDOT and the hotel for 2001, the hotel agreed to reserve about 100 discounted hotel rooms for highway contractors the night before each bid submission deadline. In addition, SCDOT receives free use of a large meeting room for its bid openings.

SCDOT awarded this exclusive contract without allowing other hotels the opportunity to make proposals to the department. More questionable, however, is SCDOT's decision to have bid openings at a hotel and procure room discounts for contractors. These two factors encourage contractors to congregate at the hotel the night before submitting bids, thus increasing the likelihood of bid-rigging and other forms of anti-competitive behavior.

Although federal regulation 23 CFR 635.113 and SCDOT standard specification 102.13 require that bids be opened publicly, there is no need for the event to occur at a hotel. We found two state government meeting rooms in Columbia, with parking, that have capacities in excess of 200 persons. We also found no need for the state government to obtain hotel discounts for private contractors.

- ❑ "Collusion is more likely if the competitors know each other well, through social connections, trade associations, legitimate business contacts, or shifting employment from one company to another."

The Associated General Contractors represents approximately 80 primary road paving and road construction contractors in South Carolina. The South Carolina Asphalt Association represents approximately 15 primary road paving and road construction contractors in the state.

- ☐ “Collusion is more likely to occur if there are few sellers.”

As we note on page 7, approximately 12% of SCDOT projects between FY 95-96 and FY 00-01 had only one bidder, while 49% had two or fewer bidders.

- ☐ “Repetitive purchases may increase the chance of collusion, as the vendors may become familiar with other bidders and [as] future contracts provide the opportunity for competitors to share the work.”

SCDOT procures road paving and road construction services approximately once a month. An official from SCDOT stated that monthly bid openings increase competition by permitting smaller contractors to bid for state projects. He also stated that bid preparation is easier under a system of monthly bid openings.

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## Conclusion

Ending the use of hotels for bid openings and discontinuing hotel room discounts for contractors the night before bids are due would make the bidding environment less favorable to collusion. However, there will continue to be a need for ongoing analysis of bidding patterns that could indicate bid-rigging or other forms of anti-competitive behavior (see p. 13).

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## Recommendation

6. The Department of Transportation should:
- Discontinue the opening of bids at hotels and use government facilities instead.
  - Ensure that bid openings are held at a time so that contractors from all parts of the state can comfortably drive to Columbia without arriving a day early.

# Agency Comments

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**Appendix A**  
**Agency Comments**

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December 12, 2001

Mr. George L. Schroeder, Director  
Legislative Audit Council  
1331 Elmwood Ave., Suite 315  
Columbia, SC 29201

Dear Mr. Schroeder:

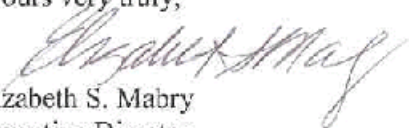
Enclosed are final comments by the South Carolina Department of Transportation on "A Review of Competition for the Department of Transportation's Road Paving Contracts." There are no additional affidavits enclosed because no additional staff members were involved in preparing the comments. As requested, an electronic form of this document has been e-mailed to Mr. Perry Simpson.

Mr. Simpson has been professional, thorough and considerate in working with my staff in the initial review of this report, and allowing time for SCDOT to properly prepare our comments. His professionalism is appreciated.

It would be helpful if you would advise me when this report becomes public information so that we will know whether or not we can discuss comments or inquiries we may receive.

If I can be of further assistance, please do not hesitate to contact me.

Yours very truly,

  
Elizabeth S. Mabry  
Executive Director

ESM:mbw

CC: State Highway Engineer Freeman  
Director of Construction Shealy

File: SIIE/TLC

The South Carolina Department of Transportation's response to South Carolina's Legislative Audit Council's report "A Review of Competition for the Department of Transportation's Road Paving Contracts"

***Recommendation #1: The Department of Transportation should conduct regular analysis of the bidding patterns of road paving contractors and road construction contractors that do business with the state. This analysis should focus primary on bid-rigging and other forms of anti-competitive behavior.***

Agency Comments: The South Carolina Department of Transportation (SCDOT) is actively pursuing the implementation of two AASHTO Transport modules, Preliminary Estimating System (PES) and Letting and Awards System (LAS), to help monitor bidding patterns. These Systems will provide data to the existing software (BAMS/DSS) already in place to perform the analysis noted in the recommendation. This combination of software will provide the SCDOT the information to perform analysis that may provide evidence of bid-rigging or anti-competitive behavior if it exists. Training for these applications is scheduled for January 2002 and data should be available to begin the analysis beginning in 2003. Although there is no electronic system in place at the current time to perform this analysis, the construction office does monitor and review all bids received on the projects and looks for unbalanced bidding and other irregularities.

The construction office presently reviews the three lowest bids submitted on every project. The bid price submitted for each project bid item is compared to the other bids and the engineer's estimate. This review will provide an indication of potential unbalanced bidding or other irregularities such as previously undetected plan errors, bidder mistakes, and recent changes in field conditions. When this review indicates a concern, it is investigated, analyzed, and resolved to the Director of Construction's satisfaction before making a recommendation.

When less than three bids are received, the bid(s) are scrutinized in greater detail including analyzing the urgency of the project. Projects that may be considered urgent include safety improvements, intersection improvements, widening improvements, and reconstruction/resurfacing where the condition of road or bridge requires immediate attention. Other factors analyzed include the type/size of the project, potential savings if the project is readvertised, geographic location of the bidders, current market conditions and workload, and other factors that the Department of Transportation has determined to be important. Combinations of these factors are normally considered when analyzing the bid(s) allowing reasonable decisions to be made by the Director of Construction.

The Director of Construction reviews the analysis of the bids with individuals who were responsible for development of the individual projects and receives their input and comments. He then presents the analysis of the bids and all comments to the State Highway Engineer for each of the projects in the letting. The specific details for each project are reviewed, discussed and a decision is rendered for recommendation of award or rejection. The State Highway Engineer has also added to his staff a Deputy State Highway Engineer who will become involved in this process.

The location of asphalt plants in reference to the project has an effect on whether it is practical for a company to bid on a particular project. Also, certain types of asphalt mixes require higher quality materials. This requirement may limit the cost effectiveness of certain plants producing asphalt mixes for a project, because the raw materials meeting the higher quality are not within close proximity of the asphalt plant. Therefore, the location of asphalt plants and quarries (suitable material sources) in reference to a project are large factors in determining which companies will bid. Companies that own asphalt plants near suitable material sources and close to project sites do have an advantage over companies that do not have these resources available. We think this factor contributes to the fact that on many projects SCDOT has fewer than the desired number of six bidders. The department supports strong competition on all projects but the location of asphalt plants does impact the amount of competition that currently exists.

***Recommendation #2: The Department of Transportation should report any evidence of bid-rigging or other forms of anti-competitive behavior to the appropriate state and federal law enforcement agencies.***

Agency Comments: The Department of Transportation certainly does not condone bid rigging or anti-competitive behavior in any form. If evidence of such activities is detected, the SCDOT will report such activities to the proper authorities.

The Department has provided training to employees in anticipation of implementation of the software mentioned in Recommendation No. 1. We will continue to provide training in this area. The training enables the individuals to detect trends that may indicate possible anti-competitive behavior. If these trends are detected, additional analysis would be performed. Any areas needing further investigation would be referred to the proper authorities.

***Recommendation #3: The Department of Transportation should enact a written policy requiring that cost estimates of road paving and road construction projects be kept confidential until after the contracts are awarded.***

Agency Comments: Cost estimates of projects are required to develop the State Transportation Improvement Plan (STIP). The STIP is required by federal regulations for budgeting and planning. Federal regulations also require that the STIP be made available to the public. Road paving projects are not detailed in the STIP and the SCDOT does not release any information concerning the engineer's estimate for these types of projects until after award. The Department does not release the engineer's estimate after award unless required by law through a freedom of information request. The Department will reinforce its present practice with a written policy.

***Recommendation #4: The Department of Transportation should annually measure how often it meets the federal recommended standard for the accuracy of engineer's cost estimates.***

Agency Comments: The SCDOT compares the engineer's cost estimate with the low bid received on a monthly basis after each letting. There is a summary sheet produced each month that compares the total dollar amount of the engineer's cost estimate to the actual low bidder's amount for all contracts. As shown in the attached chart, the difference between these two parameters for the past two years has been in the plus/minus 10 percent range.

The number of low bids received for the past two years which have been within plus or minus 10 percent of the engineer's estimate has been a little less than the 50 percent as recommended by the FHWA Technical Advisory Guideline T 5080.4. However each low bid outside these parameters was analyzed on an individual basis and met the Department's satisfaction prior to award. SCDOT believes there are a number of valid reasons that contribute to this difference between the estimates and the low bid but we certainly would like these comparisons to be in accordance with the federal guidelines. We will have the estimates and bids received over the past three years analyzed by a team, led by FHWA to provide SCDOT with recommendations of any improvements that need to be made with the estimating and present bidding approach.

An annual measurement and review of how well the SCDOT meets the federal guidelines for accuracy of engineering cost estimates will be implemented.

***Recommendation #5: The Department of Transportation should develop a written policy specifying when bids are to be reviewed and rejected.***

Agency Comments: The SCDOT does use the "ten percent" guideline in reviewing the engineer's cost estimate. Any projects that do not fall within ten percent of the engineer's costs estimate are reviewed in further detail to determine if there is a reason for the differences. There are a number of reasons that can cause these differences such as sudden increases in material costs or factors inadvertently not considered during the estimating process. These projects are reviewed on a case-by-case basis to determine if the best interest of the Department and the State of South Carolina is served.

Since the vast majority of projects are federal aid projects, the Department uses the federal guidelines in the review of bids and the determination of award of contracts. These guidelines allow some discretion in the analysis and review. The Department will use the federal guidelines (Technical Advisory T5080.6) to develop its written procedure specifying when bids are to be reviewed and rejected. The SCDOT will partner with the FHWA in developing this procedure.

***Recommendation #6: The Department of Transportation should:***

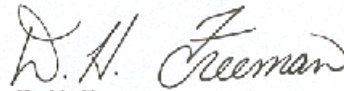
- ***Discontinue the opening of bids at hotels and use government facilities instead.***
- ***Ensure that bid openings are held at a time so that contractors from all parts of the state can comfortably drive to Columbia without arriving a day early.***

Agency Comments: The SCDOT has a scheduled bid opening on the second Tuesday of each month. The SCDOT does not have a room or parking facilities of sufficient size to accommodate the bid opening at its Park Street location and elected to contract with a local hotel as described in the LAC report. Although the SCDOT has a contract with the local hotel through 2002, we recognize the concerns regarding the present arrangement as pointed out in the LAC report. It is our desire to provide a more competitive environment therefore, the SCDOT has already begun a search to locate a government facility large enough to accommodate the bid opening process and discontinue its contract with the local hotel. This change will be implemented as quickly as possible. We expect it to take approximately three (3) months to make the necessary arrangements to implement this change.





The SCDOT has been piloting an electronic bidding system (Bid Express), which will allow contractors to submit bids electronically. This process will allow for the submission of bids by prequalified contractors from any location. When fully implemented, contractors will be able to submit their bids prior to the bid opening time and review the results from their home office as soon as the SCDOT posts the information on the Bid Express site. Contractors will not have to travel or be present to submit a bid or find out the results of the bid opening. The pilot projects have gone well and we will start accepting electronic bids in early 2002. SCDOT and four other states are the only ones using this system at present. Georgia is probably farthest along with this implementation and has reported that about 90 percent of their bids are now received electronically. Once implemented, this process will address the concerns associated with the bid letting location and travel time.

We are also reviewing the options concerning moving the bid openings to a later time in the day. This may allow contractors to comfortably travel from their home location to the bid opening site without the need to secure a hotel the night before. We will review our process in light of moving the bid opening to a non-hotel setting to ensure that any new bid opening time is appropriate.



D. H. Freeman  
State Highway Engineer

Reviewed and Approved   
D. R. Shealy, Director of Construction

Reviewed and Approved   
T. L. Chapman, Deputy State Highway Engr.

# PROJECTS LET BY STATE FY

LETTING	NUMBER OF PROJECTS	NUMBER OF BIDDERS	NUMBER OF 6 BIDDERS OR MORE	NUMBER GREATER THAN 10%	NUMBER LESS THAN 10%	TOTAL ENGR ESTIMATE	ACTUAL TOTAL	% DIFF BETWEEN ACTUAL AND EST
July-00	12	43	2	4	3	\$ 25,245,570.85	\$ 27,979,059.23	10.83%
Aug-00	32	119	5	9	8	\$ 78,224,031.55	\$ 70,094,509.08	-10.39%
Sep-00	29	117	7	5	9	\$ 61,685,706.53	\$ 58,929,792.35	-4.47%
Oct-00	13	52	4	5	0	\$ 105,631,409.65	\$ 108,955,389.04	3.15%
Nov-00	19	102	8	3	8	\$ 54,231,301.92	\$ 48,327,844.53	-10.89%
Dec-00	10	48	5	1	3	\$ 9,632,141.17	\$ 8,176,185.85	-15.12%
Jan-01	7	27	1	1	3	\$ 94,460,369.12	\$ 83,731,910.25	-11.36%
Feb-01	17	68	4	1	5	\$ 85,026,887.91	\$ 78,646,389.96	-7.51%
Mar-01	22	100	6	2	15	\$ 122,835,612.74	\$ 96,153,845.20	-21.72%
Apr-01	14	61	3	2	9	\$ 18,915,968.09	\$ 15,728,476.05	-16.85%
May-01	20	79	5	1	12	\$ 51,157,728.46	\$ 42,375,779.61	-17.17%
Jun-01	19	90	7	2	12	\$ 12,771,835.57	\$ 10,607,934.96	-16.94%
<b>FY 2000-2001 TOTALS</b>	<b>214</b>	<b>906</b>	<b>57</b>	<b>36</b>	<b>87</b>	<b>\$ 719,820,563.56</b>	<b>\$ 649,707,116.11</b>	<b>-9.74%</b>
PERCENT WITHIN 10% OF ENGR EST					42.5%			
PERCENT GREATER THAN 10% OF ENGR EST					16.8%			
PERCENT LESS THAN 10% OF ENGR EST					40.7%			

Jul-99	19	73	3	1	15	\$ 12,380,287.26	\$ 10,437,174.98	-15.70%
Aug-99	7	26	1	1	4	\$ 4,749,417.28	\$ 4,675,293.00	-1.56%
Sep-99	21	86	4	16	1	\$ 9,390,772.52	\$ 10,927,914.37	16.37%
Oct-99	30	97	1	3	10	\$ 36,651,854.06	\$ 34,821,027.59	-5.00%
Nov-99	55	250	19	12	11	\$ 65,346,883.18	\$ 67,412,005.66	3.16%
Dec-99	41	126	4	8	9	\$ 63,425,601.66	\$ 64,534,203.06	1.75%
Feb-00	8	38	3	1	3	\$ 14,510,150.03	\$ 14,016,713.94	-3.40%
Mar-00	20	88	7	4	11	\$ 50,051,361.91	\$ 51,600,760.20	3.10%
Apr-00	14	37	0	6	3	\$ 24,273,306.52	\$ 25,536,629.61	5.20%
May-00	13	51	3	4	3	\$ 50,323,710.78	\$ 49,758,580.05	-1.12%
Jun-00	25	95	4	5	9	\$ 50,411,030.51	\$ 40,533,783.36	-19.59%
<b>FY 1999-2000 TOTALS</b>	<b>253</b>	<b>967</b>	<b>49</b>	<b>61</b>	<b>79</b>	<b>\$ 381,514,375.71</b>	<b>\$ 374,254,085.82</b>	<b>-1.90%</b>
PERCENT WITHIN 10% OF ENGR EST					44.7%			
PERCENT GREATER THAN 10% OF ENGR EST					24.1%			
PERCENT LESS THAN 10% OF ENGR EST					31.2%			